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ABSTRACT

One of the most elusive statistics in education today is student mobility. Current mobility statistics are based on available rather than appropriate data, resulting in the best available mobility index, rather than one that would serve real information needs. This study documents methods currently being used by school districts and other entities studying the above problem and illustrates the wide disparity among statistics produced by these varying methods. A recommendation for the best options concludes the report, which also reviews student mobility in the Austin (Texas) Independent School District. A letter requesting methods of calculating student mobility was sent to 155 directors of research and evaluation and heads of state departments of education in all 50 states and some other jurisdictions. Responses from 93 organizations concerning 62 formulas and definitions demonstrate the variety of approaches. Emerging from these are five important dimensions of mobility to consider in selecting an index: (1) level of analysis; (2) term of analysis; (3) frequency of moves; (4) nature of moves made; and (5) cause of changes. The analysis of student mobility in Austin highlights withdrawals and transfers. Five figures illustrate the discussion, and 10 references are included. Attachment A gives mobility, turbulence, and stability formulas. Attachment B lists and maps organizations sending formulas and those asking for study results. (SLD)

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Student Mobility Rate:
A Moving Target

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Introduction

As the nation addresses issues such as year-round education, freedom of choice, and site-based management, the influence of student mobility must be considered. How are we to provide continuity in learning as students move from school to school and encounter contrasting academic programs? How can we ensure that services follow students without dysfunctional delays? Can we really make schools unique to each other when the students they serve cross over school boundaries so often? Clearly in order to address these questions, we must be able to describe the nature of student mobility and its relationship to learning. The creation of a national standard for indexing student mobility is an early step.

Dimensions for Describing Mobility

Level of Analysis
- Student
- School
- District
- State

Term (Time Span)
- School Year
- >1 School Year
- School's Complete Grade Span

Frequency
- 1 Move
- >1 Move

Nature
- Interdistrict
  - County
  - State
  - U.S.
  - International
- Intradistrict
  - District
  - School
  - Within School

Cause
- System
  - Magnet Program
  - Alternative Program
  - Discipline
  - Boundary Change
  - New School
- Family
  - Job Change
  - Divorce
  - New Home

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Student Mobility Rate--A Moving Target

One of the most elusive statistics in education today is student mobility. Although they are not solved, much more thought and experience have been invested in the problem of defining statistics such as dropout rates, achievement test scores, and family income. A check with the National Center for Education Statistics (NCES) and the Council of Chief State School Officers (CCSSO) revealed high interest in mobility, but no satisfactory resolution of how to measure and calculate mobility statistics. Several state indicator systems (i.e., Texas and California) use mobility as a demographic variable. However, the reality of current mobility statistics is that they are based upon "available" rather than "appropriate" data, resulting in "the best available mobility index" rather than one that would best serve the real information needs.

Users of reliable mobility indices would include local school systems along with governmental agencies, both state and national, and university researchers seeking to improve their predictions of academic success by understanding the role of mobility in learning.

School districts are experiencing increasing problems with mobile or transient student populations. These students are exposed to less consistent instruction and are subject to other problems associated with moving to a new school environment. In many cases, the reason for the move indicates problems with school or at home.

There are numerous ways to differentiate mobile and stable student populations. This study documents methods currently being used by school districts and other entities investigating the problem, and illustrates the wide disparity among statistics produced by these various methods. The study concludes with a recommendation of the best available options for calculating appropriate mobility statistics.

The definition and formula chosen for a student mobility statistic should match the question being asked and the use to which the index will be put. Some of the relevant questions that might be asked about mobile students are:

a. Was the student continuously enrolled in the school for enough time to attribute outcomes to school variables, e.g., two years, before the indicator was measured?
b. Was the student continuously enrolled from the earliest grade to the highest grade at the school?
c. Did the student change schools or attendance areas between school years?
d. Did the student enter after the first day of school or withdraw before the last day of school?
e. How many school changes did the student make within a school year or across a number of years?
f. How often did student moves impact a school and its staff?

Each of these questions requires a specific formula and data elements for calculation. Also, should transfer students, special education students, limited-English-proficient students, magnet program students, and other groups be included or excluded when answering the above questions?

Our previous work has concluded that there are five important dimensions to mobility that must be considered when developing or selecting a mobility index.

1. Level of Analysis: Mobility can be indexed in terms of individual students or in terms of schools, districts, states, or other groups.
2. Term: Mobility can be indexed for a single year or cumulative over years.
3. Frequency: Mobility can be indexed by the number of moves made.
4. Nature: Mobility can be indexed by the nature of the moves made, i.e., intradistrict or interdistrict.
5. Cause: Mobility can be indexed by whether mobility is a result of growth (mainly a positive factor) or changes (a mixture of positive and negative factors).

Student Mobility in Austin

An analysis of student mobility into and out of the Austin Public Schools was conducted using 1990-91 student records. The following statistics were found:

1. All 50 states, the District of Columbia, and 35 foreign countries received secondary students from Austin in 1990-91.

2. During the school year, 4,326 students in grades 2 through 12 withdrew from an Austin school and left the district. Approximately another 4,000 moved during the summer.

3. In grades 2 through 12, 2,688 students transferred into Austin during the school year from another Texas school.

4. During the school year, approximately 2,500 students in grades 2 through 12 transferred into Austin from outside of Texas.

5. This totals 5,188 students transferring in with records following them.

6. In grades 2-12, 13,514 students were mobile into and out of Austin.

The Austin Public Schools enrolled 71,690 students during the 1990-91 school year; average daily membership was 65,101; average daily attendance was 61,280; official October membership 65,952.

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The problem for researchers is not only which question to ask, but also how to gather and summarize data within these dimensions. In the Austin (TX) Public Schools, guardianship, attendance, and transfer records are available to produce summary statistics concerning mobility. Therefore, this study collected available mobility formulas and applied them to the same data base to produce comparisons across them. To collect a full range of formulas, a national survey was completed of school districts and governmental agencies. Then the formulas collected were charted for comparison.

Psychometrically, if the use for a mobility index is descriptive for a general audience, then the statistic must be realistic with face validity. Some current mobility indexes produce rates above 100% even if every student has not moved. These rates lack credibility. If the use is predictive, then the mobility index must spread the scores out. The metric itself matters less than the discrimination achieved among the subjects, either students or groups.

To illustrate the issues that must be considered in selecting a mobility formula, a sample district has been created (See Figure 1). The numerator of the index in this example could range from 650 students if only those who entered or exited the school during a school year are considered mobile and the count is unduplicated, to 1250 if every exit/entry transaction is counted. The denominator could range from 900 if the first-month membership is used, to 1300 if the cumulative enrollment for the school year is used. These sample numbers result in mobility indices ranging from 72% to 139%. Obviously, a number of inclusion/exclusion decisions must be made if agreement is to be reached on a standard index or indices. Only by clearly understanding the questions and the issues related to calculating mobility statistics can we as researchers and evaluators begin to create comparable statistics.

Review of Literature

A widely held view in education is that the longer a student is exposed to a program of instruction, the better the chance that the student will learn and acquire the skills necessary to succeed in society and the work force. In other words, schools need a consistent and continuous period of instruction before

Figure 1: Theoretical School District's Mobility

	Students
Average Daily Membership	1000
Enrolled All Year (Includes 100 new to school, 150 at lowest grade level)	675
Early Leavers	200
Late Arrivals	200
Arrive Late, Leave Early	200
Arrive/Leave >1 Time	50
Cumulative Enrollment	1300
Average Daily Membership	1000
Average Daily Attendance	950
First Month Membership	900

Type of Index	Numerator	Rate Using Denominator of			
		ADM	Cumulative Enrollment	ADA	First Month Membership
		(1000)	(1300)	(950)	(900)
Students enrolled for the entire school year:					
Stability	675	68%	52%	71%	75%
Every entry or exit transaction:					
Entries/Exits	1000	100%	77%	105%	111%
Entries/Exits Plus Students in Lowest Grade, New to School	1250	125%	96%	139%	139%
Each student entering or exiting, unduplicated count:					
Students Entering or Exiting	650	65%	50%	68%	72%
Students Entering or Exiting Plus Students in Lowest Grade, New to School	900	90%	69%	95%	100%

they can have a significant impact upon students.

In reaction to this realization, many schools and school districts have recently focused more attention upon efforts to keep students in school, as well as the identification of potential dropouts. Attendance policies have been revised to encourage and require students to be in school. Also, school calendars have been lengthened to increase the amount of time students are exposed to instruction.

Most systems of instruction and curricula assume that the student will be present in a school or classroom from the beginning of the semester or year to the end. For many students, however, it is becoming increasing clear that this is not the case. A new category of students has been identified. These students attend urban or suburban schools and have a tendency to move multiple times during their school years. These moves are a result of various changes in the lives of students, for example, a divorce of the parents or a job transfer of a parent.

Although some of the issues important to schools dealing with urban mobile students overlap with those of agricultural migrant students, some issues are unique to this population. While many schools have programs in place to deal with the special problems of migrant students, most schools do not have systems designed to address the problem of urban mobility (Bayer, 1982; Lash & Kirkpatrick, 1990).

Americans, in general, are more likely to change their place of residence than others. The fact that Americans are a more mobile population has now been documented for many years. For example, Long (1970) in a study across various countries found that Americans move more than Europeans and the Japanese. This study was unique, at the time, in that it looked at just the nonagricultural labor force (urban males). This method compared various countries based upon urban mobility rates.

A much cited mobility statistic from the 1985 Department of Commerce report on geographic mobility (U.S. Department of Commerce, 1987) tells us that one in five Americans will move during a one-year time period. Also in this report are statistics indicating that young children (usually children of younger parents) move more than older children. In 1984-85, the mobility rates of children of preschool and school age were as follows:

Age Range in Years	Percent Who Moved in a One-Year Period
1-4	29.4
5-9	23.0
10-14	17.6
15-19	19.9

As illustrated above, the mobility rates of young children are much higher than older children. Mobility rates begin to increase slightly in the 15-19 age range.

Elsewhere in the Department of Commerce report, we find that after age 19 the mobility of young adults becomes suddenly larger as young adults move away from parents. Rates decrease again as the population becomes older. During the 50's and 60's the United States experienced high mobility rates followed by a decline in the 70's. The last decade witnessed a return to relatively high mobility rates.

Bayer (1982) was one of the first educational researchers to point out that the mobility of urban students might be an important factor to study in terms of student success. He notes that although conventional wisdom says that student mobility can have negative effects upon student adjustment and achievement, the question deserves much more research. Bayer proposes a typology of school transfers as an aide to this type of research. His typology includes systemic moves and individual moves. A systemic move would be, for example, a move from middle school to high school or a desegregation transfer. Individual moves can be categorized according to the reason for the move. Individual moves would include things such as military, corporate, and clergy transfers.

Much interest in student mobility has been related to the psychosocial effects of moving upon students (e.g., Calabrese, 1989). More recently, Lash and Kirkpatrick (1990) have provided a description of the effects of mobility upon classrooms, teachers, and schools. They document the preparations that teachers have to make for late-entering students as well as for students leaving their classrooms. Lash and Kirkpatrick make a number of good suggestions that might ease the transition for students as well as teachers.

Despite the continuous interest in urban student mobility of the past few years, there is not a large body of research that examines the effects of mobility upon student achievement. One problem with this kind of research, as noted by Ingersoll, Scamman, and Eckerling (1989) in their study of mobility and standardized test scores, is that other variables such as socioeconomic status (SES) and ethnicity are also highly related to achievement and to mobility.

A research study conducted in the Austin Public Schools showed that black students are the most mobile. Hispanic students are also fairly mobile. While white students are associated with the lowest mobility rates. The same study also showed that low-income students are a category of students that are also highly mobile.

Despite the problem with correlated demographic variables, Ingersoll, Scamman, and Eckerling (1989) are able to conclude that mobility acts as an adverse influence upon achievement. Reynolds (1991) has conducted a causal model analysis of variables that affect achievement in the early grades (K-2). Variables such as previous achievement, student motivation, and SES showed causal effects in the model. In addition, the mobility of the students was often a significant effect in the model. The use of the causal modeling technique allows an analysis of complex effects. The use of this technique might give us a better idea of how mobility interacts with other variables in relation to student achievement.

Survey Method

A letter requesting methods of calculating student mobility statistics was sent to 155 directors of research and evaluation (DRE) and heads of state departments of education in all 50 states, the District of Columbia, five extra-state jurisdictions, and the Department of Defense Dependents Schools. The DRE is an informal group consisting of directors of research and evaluation throughout the United States who meet prior to the annual meeting of the American Educational Research Association. The directory of chief state school officers was obtained

from the Council of Chief State School Officers.

Responses were received from 93 organizations. This count includes 12 calls and 86 written responses received. Of these, 54 organizations sent mobility formulas or definitions. Because some organizations sent more than one formula or definition, a total of 62 formulas and definitions was received.

Figure 2 is a map illustrating the locations from which formulas were received. Every part of the United States is represented in the formulas with the notable exceptions of the central, deep south and the northwest minus the Pacific far west. This diverse response pattern adds weight to the conclusion that student mobility is a national concern. Attachment B is a map of all the organizations responding with either formulas of a request for a copy of the study.

Survey Results

The formulas and descriptions received were charted as shown in Attachment A. In order to organize them, four categories were created:

1. Stability Indices
Those that describe the proportion of students who are enrolled for an entire school year or for a specified period of the school year.

2. Turbulence Indices
Those that describe the total number of changes/moves of any type by students as a ratio to a count of all students.

3. Mobility Indices
Those that describe the proportion of students who move and as a consequence have a change in school assignment between or during a school year.

4. Mobility Counts
Mobility counts are not proportions, merely the number of students who change or student changes during a school year.

Figure 3, on the next three pages, summarizes each of these formulas using a set of abbreviations created to represent the common elements across formulas. The value for each element in Austin is given. These local values were used to calculate the mobility rate for the Austin student population using each of the formulas collected. Figure 4 shows the range of rates calculated in each category.

Clearly, the choices made by local and state education agencies when creating mobility formulas make considerable differences in the rates reported. In order to make sense across these various formulas, both logical and practical considerations need to be accommodated. Logical considerations would include the creation of an index with face validity for the public and construct validity for the practitioner. Practical considerations would include the creation of an index that uses numbers that are reasonable to collect and report.

Figure 2: Locations from Which Formulas Were Submitted

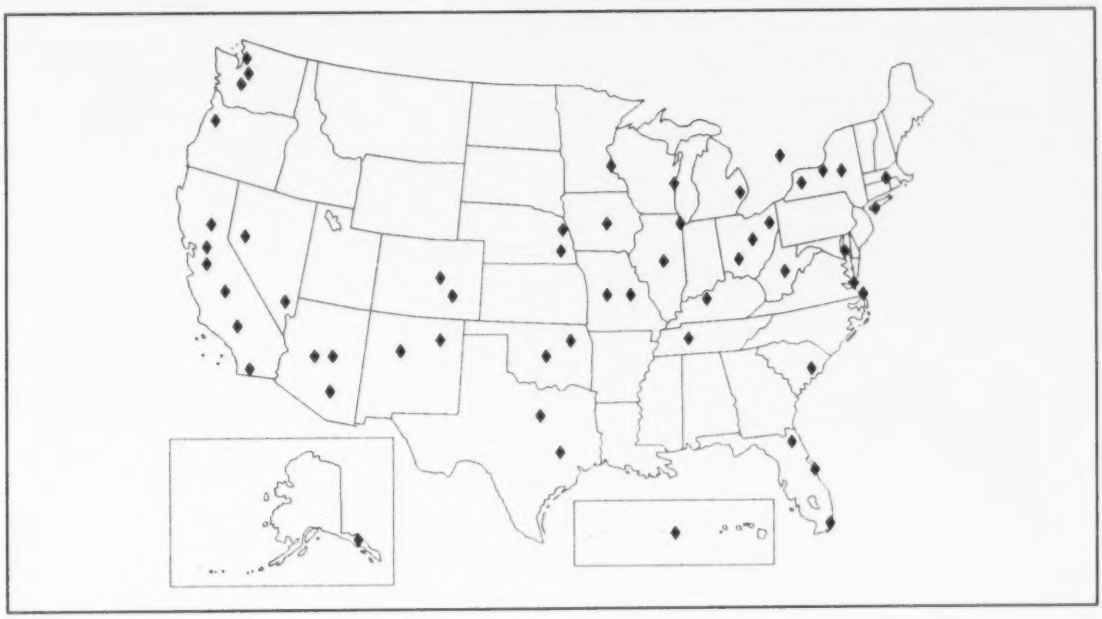

Figure 3: Formulas Submitted

Abbreviations for Mobility Chart

Abbreviation	Austin Value for 1990-91	Definition
ADA:	61,280	average daily attendance
ADM:	65,101	average daily membership
AME:	65,184	average monthly enrollment (estimated as average six-weeks enrollment)
BOY:	65,952	beginning of year membership, as of an official date
CE:	71,690	cumulative enrollment
EOY:	64,282	end of year membership
IT:	875	internal transfers of students moved within a school
LE:	7,371	late entries or transfers into a school from another school, school district, or state, after the beginning of the school year
NR:	8,552	students not returning from previous year and not seniors
PYE:	69,787	a school's previous year's cumulative enrollment
RE:	920	re-entries are students re-entering the school after having withdrawn from the same school
RS:	59,310	returning students are students who return to the same school attended the previous year, or students who make a natural move, which is any move due to district tracking patterns, for example, from an elementary school to a middle school or a middle school to a high school
SS:	50,573	stable students are students who stay the school year from beginning to end and leave only for excused reasons and return to the same school
ST:	3,424	summer transfers are students who move to another school during the summer, except for natural moves
W:	16,225	withdrawals are students who withdraw for any reason or are dropped for a specified number of consecutive absences

1. Mobility Formulas — **Range for Austin's Rate: 8.0% to 44.8%**

Source	Numerator	Denominator	Austin's Rate
Buffalo City School District; Buffalo, NY	LE + W	BOY	35.8%
Hawaii Department of Education; Honolulu, HI			
Jefferson County Public Schools; Golden, CO			
Missouri State Department of Education; Jefferson City, MO			
Mt. Diablo Unified School District; Concord, CA			
Oakland Unified School District; Oakland, CA			
Rochester City School District; Rochester, NY			
St. Louis Public Schools; St. Louis, MO			
Tucson Unified School District; Tucson, AZ			
Albuquerque Public Schools; Albuquerque, NM	LE + W	ADM	36.2%
Baltimore County Schools; Towson, MD			

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Figure 3, Continued

Source	Numerator	Denominator	Austin's Rate
Chicago Public Schools; Chicago, IL	LE + W	ADM	36.2%
Columbus Public Schools; Columbus, OH			
Des Moines Independent Community School District Des Moines, IA			
Illinois State Board of Education; Springfield, IL			
Norfolk Public Schools; Norfolk, VA			
Akron Public Schools; Akron, OH	LE + W	EOY	36.7%
Orange County Public Schools: Orlando, FL			
San Diego City Schools; San Diego, CA			
Charleston County School District; Charleston, SC	LE + W	CE	32.9%
Mesa Public Schools; Mesa, AZ			
Milwaukee Public Schools; Milwaukee, WI			
New York City Public Schools; Brooklyn, NY			
West Virginia Department of Education; Charleston, WV			
Alaska State Department of Education; Juneau, AK	$1 - \frac{SS}{CE}$	—	29.5%
Colorado Springs Public Schools; Colo. Springs, CO	$1 - \frac{(BOY - W + LE)}{BOY}$	—	13.4%
Dade County Public Schools; Miami, FL	LE + W	LE + W + SS	31.8%
Irving Public Schools; Irving, TX	RE + W	ADM	26.3%
Jefferson County Public Schools; Louisville, KY	LE - (IT + RE)	BOY	8.5%
Lincoln Public Schools; Lincoln, NE	CE - SS	CE	29.5%
Mesa Public Schools; Mesa, AZ	W	CE	22.6%
New Mexico Department of Education; Santa Fe, NM	(LE + W) - RE	SS	44.8%
Oklahoma City Public Schools; Oklahoma City, OK	NR LE + ST	PYE ADM	12.3% 16.6%
Omaha Public Schools; Omaha, NE	W	ADM	24.9%
Sacramento City Schools; Sacramento, CA	(BOY + LE) - AME	AME	12.5%
Springfield Public Schools; Springfield, MA	$1 - \frac{BOY}{CE}$	—	8.0%
Tacoma Public Schools; Tacoma, WA	LE + W	W + EOY	29.3%

Figure 3, Continued

2. Turbulence Formulas — **Range for Austin's Rate: 10.1% to 117.0%**

Source	Numerator	Denominator	Austin's Rate
Tulsa Public Schools; Tulsa, OK	LE + IT + RE + W	BOY	38.5%
Virginia Beach City Public Schools; Virginia Beach, VA			
Arizona Department of Education; Phoenix, AZ	ST + LE + W + RE	ADM	42.9%
Fresno Unified School District; Fresno, CA	CE - ADM	ADM	10.1%
Houston Independent School District; Houston, TX	RE + LE + W	RS	41.3%
Long Beach Unified School District; Long Beach, CA	CE	ADA	117.0%
Washoe County School District; Reno, NV	(CE - BOY) + LE + W	BOY	44.5%

3. Stability Formulas — **Range for Austin's Rate: 64.2% to 85.0%**

Source	Numerator	Denominator	Austin's Rate
Austin Independent School District; Austin, TX	SS	BOY	76.7%
Bellevue Public Schools; Bellevue, WA (uses 4 year cohorts)			
Clark County School District; Las Vegas, NV			
Jefferson County Public Schools; Golden, CO			
Mt. Diablo Unified School District; Concord, CA			
San Diego City Schools; San Diego, CA			
Colorado Springs Public Schools; Colorado Springs, CO	BOY - (W + LE)	BOY	64.2%
Duval County Public Schools; Jacksonville, FL	BOY - W	EOY	77.4%
New York State Education Department; Albany, NY * highest grade of school only	RS*	PYE*	85.0%
Norfolk Public Schools; Norfolk, VA	BOY - W	BOY	75.4%
Tacoma Public Schools; Tacoma, WA	SS	SS + W	75.7%

4. Counts

Source	Numerator	Denominator	Austin's Count
Bellevue Public Schools; Bellevue, WA	LE + W	NO DENOMINATOR	23,596
Nashville City School District; Nashville, TN			
North York Board of Education; North York, Ontario			
St. Paul Public Schools; St. Paul, MN			
Beaverton Schools; Beaverton, OR	LE + RE + W + IT	NO DENOMINATOR	25,391
Cincinnati Public Schools; Cincinnati, OH	SS	NO DENOMINATOR	50,573

Figure 4: Range of Rates for Mobility/Stability

Type of Index	Range of Rates for Austin Using Formulas Submitted
Mobility	8.0% to 44.8%
Turbulence	10.1% to 117.0%
Stability	64.2% to 85.0%

Recommendations for Mobility Indices

As anticipated at the beginning of this study, a single mobility index is inadequate to answer the questions everyone has about this phenomenon. The diversity of formulas in use throughout the nation, and in Canada, is evidence that there are abundant alternatives for describing mobility. In the end, however, three unique questions call for a specific measure of mobility.

1. *How many students are stable and receive the full impact of a school's programs?*

This question is best answered by an **index of student stability**.

When assessing the effectiveness of a school, an issue that must always be addressed is which students have attended the school for a sufficient time to be influenced by its programs and for whom the school should be held accountable. Even though the stable students are generally the only ones who are included in pre-post indicators, often quasi-longitudinal measures are reported and include mobile students measured only once. An index of stability communicates the proportion of students with whom the school has had contact over a significant amount of time. For a quasilongitudinal study, this stability index indicates the proportion of the outcome that may have been significantly influenced by the school. For a true longitudinal study, this stability index indicates the proportion of the students who are measured more than once. Both pieces of information contribute to a better interpretation of the educational significance of the findings.

The numerous examples of this type of index all have two common elements:

A count of students who were enrolled in a single school for a significant time period, and

A count of all students who were enrolled at a point in time at the beginning of the school year.

Our recommendation for a standard definition and formula is:

SS (Stable students who stay the school year from beginning to end and leave only for excused reasons and return to the same school: defined as from the fourth week of the school year through the end of the school year)

Divided by:

BOY (Beginning of the year membership , as of an official date: defined as the end of the fourth week of the school year)

This index is basic to evaluating the effectiveness of a school or educational program, and to comparing effectiveness across schools and programs. Students who come in late, come and go, or leave early can dilute the measured effectiveness/impact of a school or program on student outcomes. Now we must acknowledge the backlash to this notion of accountability based only upon stable students. Schools and programs clearly must be effective with the mobile students as well. However, the cleanest evaluation with the fewest competing hypotheses can be conducted when the participation of the students is known and substantial. Because most indicator systems reporting gains actually measure the stable students, those who are present to be measured, a stability index makes sense for interpreting the proportion of students served to a threshold of influence.

2. *How many times is a school impacted by having to change a student's record as a result of the student's entering, exiting, or moving within the school?*

This question is best answered by an index of school turbulence, a very descriptive term used by several school districts. This index describes the amount of time and effort that changes in a student's status causes a school's staff to expend. Examples of this type of index have these two common elements:

A count of any and all changes in students' enrollment status, including natural changes, changes between classes within a school, mobility between schools, etc.

A count of all students enrolled at a specified time or during a specified period.

Our recommendation for a standard definition and formula is:

IT + LE + RE + ST + W + Any other time a student's record has to be changed because of a change in assignment, either internal or external to the school

Divided by:

CE Cumulative enrollment

Turbulence does not appear to be a useful index for comparisons across schools, because the record keeping of all types of moves is cumbersome. In addition, local decisions impact turbulence as well as factors related to the student's family. Turbulence is useful more as a measure of the workload of a school's staff than as a measure of influence on the learning of a student. Turbulence might prove to be a useful factor in local staffing decisions, but would be difficult to implement as a national index for comparison. A

practical limitation on the usefulness of a turbulence index for comparisons across districts is the record keeping difficulty imposed by counting every type of move. Many inconsistencies in definitions and reporting would be likely. In addition, many of the internal moves counted in a turbulence formula would be as a consequence of local decisions to move teachers or to configure schools in various grade level combinations. This goes well beyond the notion of measuring student mobility.

3. *How many times has an individual student's address changed such that the student's school assignment and attendance also changed?*

This is the pure index of student mobility--an index of family uprootedness that impacts the continuity of a student's education. In order to propose a single mobility index that can be calculated and compared across school districts, simplicity in terms and definitions is required. The examples of this type of index have these common elements:

A count of all students whose address changed and resulted in a change of school assignment/enrollment from one school year to the next or within a school year.

A count of all students enrolled at a specified time or during a specified time period.

Our recommendation for a standard definition and formula is:

LE + ST + W (Any move that is not a natural move; an unduplicated count)

Divided by:

CE (Cumulative enrollment)

An issue is whether students who move out of a school should be counted in the numerator. Because they are mobile students, they are counted even though they may impact their new school more than the one they are leaving, and they would be counted in the mobility index of both schools.

This simplicity in terms argues for the discounting of student changes for magnet schools, intra- and interdistrict transfers for purposes other than an address change, and all natural moves. Simplicity also argues for the designation of a single definition of the denominator, such as cumulative enrollment for an entire school year. This would make the denominator consistent with the recommendation for the best denominator to use when calculating dropout rates, see Ligon, et al., 1990.

Returning to address the five dimensions of mobility described earlier, we see that this recommended index of student mobility ignores the dimensions of cause and frequency. These two dimensions will require much more research to identify how they should be handled. Practically, the paperwork and labor required to collect mobility data in the detail needed to categorize student moves within these two dimensions would reduce substantially the chances of any national reporting of mobility.

Mobility Impact Index

The simplicity and practicality of the mobility index recommended may preclude the advantages of creating and calculating an index that is empirically more descriptive of the relationship of mobility and student learning. Can a more sophisticated index be developed that is more strongly related to student learning than the ones defined above? A **mobility impact index** would measure mobility in a way that describes its relationship with learning. To attempt this, we used our local student data base to categorize students into groups based upon their mobility and then to compare those groups' relative academic success.

Student mobility was measured by examining the school location history and the withdrawal and re-entry history of each student. This was accomplished by accessing historical and current-year student data. Each student was classified into one of four categories as follows:

(A) Stable over time. No school changes during the current year and no school changes in the past other than moves from elementary to middle and middle to high school.

(B) Moved during the current year, one or more times, but did not move in previous years.

(C) Did not move during the current year but moved one or more times in previous years.

(D) Mobile over time. Moved one or more times in the current year as well as one or more times in the past.

In order to investigate the relationship between mobility and achievement, an Analysis of Variance was performed using Iowa Tests of Basic Skills (ITBS) and Tests of Achievement and Proficiency (TAP) scores. Grade equivalent scores were compared for the four mobility groups at each grade level (see Figure 5).

Highly significant differences were found at all grade levels indicating that the achievement of the four mobility groups does differ. Although the percent of variance accounted for was relatively small at .05, this finding is meaningful because other immediate factors also affect test scores. These factors are things such as type of instruction, family environment, and SES. Also, highly mobile students are less likely to be present for testing.

Because grade equivalent scores vary by grade (the higher the grade the higher the grade equivalents), least squares means were computed for each group. These means were computed holding grade

Summary of Recommended Indices

Index of Student Stability

$$\frac{\text{STABLE STUDENTS}}{\text{BEGINNING OF YEAR MEMBERSHIP}} \quad \frac{\text{SS}}{\text{BOY}}$$

Index of Student Turbulence

$$\frac{\text{ALL MOVES, INTERNAL AND EXTERNAL}}{\text{CUMULATIVE ENROLLMENT}} \quad \frac{\text{IT+LE+RE+ST+W}}{\text{CE}}$$

Index of Student Mobility

$$\frac{\text{UNDUPLICATED STUDENT MOVES}}{\text{CUMULATIVE ENROLLMENT}} \quad \frac{\text{LE+ST+W}}{\text{CE}}$$

Note: Abbreviations defined in Figure 3.

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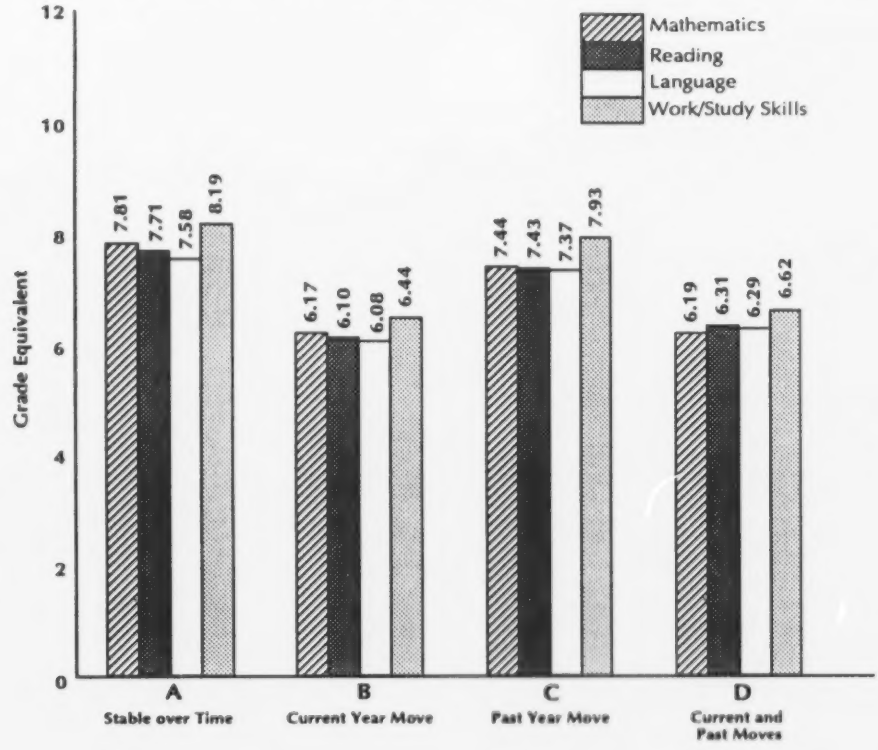
Figure 5: Adjusted Means of Mobility Groups



constant. Mean adjusted grade equivalents were as follows:

Mathematics

Group		Mean Adj. GE
A:	Stable over time	7.81
B:	Current year move	6.17
C:	Past year move	7.44
D:	Current and past moves	6.19

Reading

Group		Mean Adj. GE
A:	Stable over time	7.71
B:	Current year move	6.10
C:	Past year move	7.43
D:	Current and past moves	6.31

Language

Group		Mean Adj. GE
A:	Stable over time	7.58
B:	Current year move	6.08
C:	Past year move	7.37
D:	Current and past moves	6.29

Work/Study Skills

Group		Mean Adj. GE
A:	Stable over time	8.19
B:	Current year move	6.44
C:	Past year move	7.93
D:	Current and past moves	6.62

All except one of the pairwise comparisons (Sheffe and Tukey tests) were significant.

An examination of the above tables indicates that the least mobile group (group A) is always the highest in achievement. The group that has moved, but not in the current year, is doing next best. The lowest means are in the groups that had current year moves only (group B) and current and past year moves.

Interestingly, students who have moved in the present and past score higher than students who have moved for the first time. This might indicate that the first move has the most effect upon achievement. Also, the above results indicate that current year moves have the greatest impact upon achievement. Past year moves seem to have little effect.

Clearly, a mobility impact index should reflect the importance of current year moves. Any proposed mobility impact index based upon the data above should reflect the small difference between categories B (current year move) and D (current and past year move). It should also reflect a small difference between categories A (stable) and C (past year move).

We suggest that, because past year moves do not have a great impact, mobility impact data does not need to be collected in the manner above, i.e., four categories. Until further research clarifies the effect of past year moves, we propose that the mobility impact index be a simple proportion of students who are mobile over a certain period of time (the higher the proportion, the higher the impact). This would be similar to the mobility index recommended earlier. The difference between this mobility impact statistic and the mobility index proposed earlier is that the impact index uses the student as the level of analysis. Information must be collected for each individual student in order to produce this statistic. In contrast, the mobility index is based upon school level data and the collection of individual student data is not necessary.

Summary

What has this study accomplished? First, we now have an understanding of the

range and variety of methods used by school systems and states to report student mobility. From this understanding, we have matched the formulas in use with the educational questions that need to be answered by a mobility index. These questions have led us to conclude that two indices are needed for reporting and comparisons across school systems--an index of student stability and an index of student mobility. A third index of student turbulence can have utility for local allocation of school resources. This study has also identified five dimensions of student mobility that need to be considered. However, the indices recommended for national comparisons are very simple and straightforward in their calculations in order to increase the likelihood of their becoming a reality. Finally, this study has established that much more research is needed to understand the dimensions of mobility and to enable us to improve our reporting of mobility indices that have an established relationship to student learning.

Conclusion

Do we need consensus on how to measure student mobility? We believe that the answer must be "yes" based upon how widespread the practice is now of reporting some type of mobility indicator at the local and state levels. The benefit of a national standard would be the ability to compare across organizations. In order to answer the different questions we have about student mobility, we need at least two indices--one for stable students and one, which is not the reciprocal of the first, for mobile students. Local schools may have need for a turbulence indicator to assist in determining the resource impact of all types of student movements on staff. We recommend that a mobility impact index to describe the impact on student achievement of mobility be explained further. Additional Research is required to discover the more subtle influence of factors such as multiple moves, timing of moves, timing of moves, and the nature of moves.

As the nation addresses issues such as year-round education, freedom of choice, and site-based management, the influence of student mobility must be considered. How are we to provide continuity in learning as students move from school to school and encounter contrasting academic programs? How can we ensure that services follow students without dysfunctional delays? Can we really make schools unique to each other when the students they serve cross over school boundaries so often? Clearly in order to address these questions, we must be able to describe the nature of student mobility and its relationship to learning. The creation of a national standard for indexing student mobility is an early step.

Electronic Data Exchange (EDI) Standard

The National Center for Education Statistics (NCES) in response to the Hawkins-Stafford Education Improvement Amendments of 1988 is pursuing several efforts related to the standardization of data elements and their definitions for education. The Standards for Educational Data Collection and Reporting (SEDCAR) were developed to establish best practice for the planning, collection, and reporting of educational data among local, state, and national agencies. Those standards are focused on processes to ensure quality and comparability. The need for clear identification and definition of data elements is discussed in SEDCAR; however, the definition of specific data elements is beyond SEDCAR's scope.

A first effort to define data elements for education occurred with the development of the Exchange of Permanent Records for Students and Schools (ExPRESS) system. ExPRESS and its postsecondary sibling (SPEEDE) have accomplished the initial steps for formatting and defining the data elements for a student transcript that can be transmitted electronically over computer networks. ExPRESS/SPEEDE is an approved standard by the American National Standards Institute's (ANSI) Accredited Standards Committee (ASC) X12 for Electronic Data Interchange (EDI). ExPRESS/SPEEDE is administered by the Education Data System Implementation Project, directed by Barbara Clements, Council of Chief State School Officers.

The significance of all this for the investigation of student mobility is that we now have a national standard for transmitting student records across school systems and, more importantly, a core of common educational data elements and their definitions has been created. The determination of a student's mobility status is possible using these existing data elements. However, a sending school may not include all the optional data that would be required to determine a student's mobility status. Therefore, the inclusion of a specific data element indicating mobility would be desirable. This possibility will be explored with the ExPRESS/SPEEDE groups in the future.

References

Bayer, A. E. (1982, March). A school transfer typology: Implications for new theory, revised research design, and refocused school policy and practice. Paper presented at the Annual Meeting of the American Educational Research Association, New York.

Calabrese, R. L. (1989). The effects of mobility on adolescent alienation. The High School Journal, Oct/Nov, 41-45.

Bell, P. D. (1989). Annual stability rates: 1986-87 and 1987-88. Research Department, San Diego City Schools.

Ingersoll, G. M., Scamman, J. P., & Eckerling, W. D. (1989). Geographic mobility and student achievement in an urban setting. Educational Evaluation and Policy Analysis, 11(2), 143-149.

Lash, A. A., & Kirkpatrick, S. L. (1990). A classroom perspective on student mobility. Elementary School Journal, 91(2), 177-199.

Ligon, G., Stewart, B., & Wilkinson, D. (1990). Making dropout rates comparable: An analysis of definitions and formulas. ERS Research Digest, June 1990, 3-15.

Long, L. H. (1970). On measuring geographic mobility. Journal of the American Statistical Association, 65(331), 1195-1203.

Reynolds, A. J. (1991). Early schooling of children at risk. American Educational Research Journal, 28(2), 392-422.

Schuler, D. B. (1990). Effects of family mobility on student achievement. ERS Spectrum, 8(4), 17-24.

U.S. Department of Commerce. (1987). Geographic mobility: 1985 (Current Population Reports, Series P20, No. 420). Washington, DC: U.S. Government Printing Office.

Attachment A: Detail of Formulas Provided

1. MOBILITY FORMULAS

Buffalo City School District Buffalo, NY	**[Entrants + Leavers] ÷ October membership**
Hawaii Department of Education Honolulu, HI	**[Transfers IN + Transfers OUT] ÷ Official September Enrollment Count**
Jefferson County Public Schools Golden, CA	**[Transfers IN + Transfers OUT] ÷ Initial Membership**
Missouri State Department of Education Jefferson City, MO	**[Transfers IN + Transfers OUT] ÷ Fall enrollment**
Mt. Diablo USD Concord, CA	**[Transfers IN + Transfers OUT] ÷ Initial enrollment**
Oakland Unified School District Oakland, CA	**[Entries + Withdrawals] ÷ September Enrollment**
Rochester City School District Rochester, NY	**[No. of Entrants + No. of Losses] ÷ Total October BEDS (Basic Educational Data) Enrollment**
St. Louis Public Schools St. Louis, MO	**[INs + OUTs] ÷ Initial Enrollment**
INs: OUTs: Initial enrollment:	students who transfer into a school after the initial enrollment. students who transfer out of a school. as of the last day of September.
Tucson Unified School District Tucson, AZ	**[Entries + Withdrawals] ÷ October 15th Enrollment** Entries and withdrawals after the first day of school are counted in this formula.

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Albuquerque Public Schools
Albuquerque, NM

[E2 + R1 + R2 + W1 + W2 - R3] + 180 Day ADM

E2: a student who has previously been enrolled in another state's school system during the current school year and then enrolls in a New Mexico school.
R1: a student who moves from one individual school building to another building within the same district.
R2: a student who moves from one district to another in New Mexico or a student who was originally an E1 (a student who has not been enrolled in a public school in the United States during the current school year), moves to another state, the re-enters a New Mexico school.
W1: a student who indicates to the school withdrawal for any reason.
W2: a student who has been absent for ten consecutive school days.
R3: a student who was absent more than ten consecutive school days returning to the same school.

Baltimore County Public Schools
Towson, MD

[Entries + Withdrawals] + Average Daily Membership for the Entire Year (Sept. - June only)

Chicago Public Schools
Chicago, IL

[Transfers IN + Transfers OUT] + Average Daily Enrollment

Columbus Public Schools
Columbus, OH

[Pupils Entering + Pupils Leaving] + Average Daily Membership for that building site

Des Moines Independent
Community School District
Des Moines, IA

[Entries + Withdrawals] + Average Daily Membership

Illinois State Board of Education
Springfield, IL

[INs + OUTs] + Average Daily Enrollment

Norfolk Public Schools
Norfolk, VA

[E + AW] + AE

E: the cumulative E2s, R2s, and R3s on the June Enrollment-Membership Report.
AW: the adjusted withdrawals.
AE: the average enrollment for the year.
E2: any pupil from another state who has not previously, during this school year, entered any public school in this state but who has during the year, been entered in a public school in the state from which he came. (This included any school operated by the federal government.)
R2: a pupil received from another public school in the same county or city.
R3: a pupil received from a public school in the state but outside the county or city.
W2: a pupil transferred to a public school in the same county or city.
W3: a pupil transferred to a non-public school or a school in a foreign country which is not operated by our government.
W4: a pupil transferred to a public school in another county or city within the state or to a state-operated institution or hospital within the state.
W5: a pupil transferred to a public school in another state.
W8: a pupil withdrawn for other reasons and not entering another school.

Akron Public Schools
Akron, OH

[Transfers IN + Transfers OUT] + Official end of year student enrollment for the building

Orange County Public Schools
Orlando, FL

[Students Entering + Students Withdrawing] + Total Enrollment in June

San Diego City Schools
San Diego, CA

[Enters + Leaves] + School Enrollment (after start of the school year)

Charleston County School District
Charleston, SC

[A + B + C + D] + [A + B + C + D + E]

A: number of students who left the school during the school year and went to another school in Charleston County.
B: number of students who left the school during the school year and moved outside Charleston County.
C: number of students who came to the school during the school year from another school in Charleston County.
D: number of students who came to the school during the school year from outside Charleston County.
E: number of students who remained in school for the entire year.

Mesa Public Schools
Mesa, AZ

[INs + OUTs (after the first day)] + No. of students on first day of school plus all entries

Milwaukee Public Schools
Milwaukee, WI

[INs + OUTs] + Total Enrollment

New York City Public Schools
Brooklyn, NY

[B + (C + D)] + E

B: students admitted before 10/1 and discharged any time during the year.
C: students admitted on or after 10/1 and in their schools at the end of the year.
D: students admitted on or after 10/1 and discharged any time during the year.
E: total of all students in their schools for any time during the school year.

West Virginia Department of Education
Charleston, WV

Mobility Rate: **the percent of students who transferred in or transferred out of the school during the year.**

Alaska State Department of Education
Juneau, AK

Transiency rate =

$$1 - \frac{\text{students enrolled 170 days in the district}}{\text{total students enrolled at least one day}}$$

Colorado Springs Public Schools
Colorado Springs, CO

Mobility Index =

$$1 - \frac{E1 - (W + T)}{E1}$$

E1: first day enrollment.
W: withdrawals, first semester.
T: new enrollees or transfers in.

Dade County Public Schools
Miami, FL

 # Movers + [# Movers + # Nonmovers]

Mover: If entry date > = first day of school year AND/OR withdrawal date < = last day of school year.
Nonmover: If entry date < = first day of school AND/OR withdrawal date > = last day of school.

Irving Public Schools
Irving, TX

[Re-entries + Withdrawals] + ADM

Jefferson County Public Schools
Louisville, KY

[Entries - (R1 + R6)] + Beginning Membership

Entries: new students + students who have left and re-entered after a long period of time.
R1: students moved within the building.
R6: students who are withdrawn/re-entered due to short illness.

Lincoln Public Schools
Lincoln, NE

[N - S] + N

N: total number of students served in a building during the school year.
S: number of stable students (students enrolled in the school on both the first and last days of the school year and didn't have a break in enrollment in between).

Mesa Public Schools
Mesa, AZ

$$\frac{\text{Aggregate total of students that left the school during the school year}}{\text{Aggregate total of students at that specific school during that year}}$$

New Mexico Department of Education
Santa Fe, NM

[(E2 + R2 + W1 + W2) - R3] + E1

E1: student who has not been enrolled anywhere else in the United States during the current school year.
E2: student who has previously been enrolled in another state's school system during the current school year and then enrolls in a New Mexico school.
R2: student who moves from one district to another in New Mexico or a student who was originally an E1, moves to another state, then re-enters a New Mexico school.
R3: student who was absent more than ten consecutive school days returning to the same school.
W1: student who indicates to the school withdrawal for any reason.
W2: student who has been absent for ten consecutive school days.

Oklahoma City Public Schools
Oklahoma City, OK

Students not returning from previous year + Previous Year's Enrollment

Mobility rate: **Percentage of the enrollment (other than kindergartners) new to the district each year.**

Omaha Public Schools
Omaha, NE

Number of transfers out of the school + Average Daily Membership

Sacramento City Schools
Sacramento, CA

[(Beginning enrollment + new students) - Average Monthly Enrollment] + Average Monthly Enrollment

Springfield Public Schools
Springfield, MA

$$\text{Mobility Index} = 1 - \frac{\text{Students enrolled (as of a certain date)}}{\text{No. of students served during the school year}}$$

Tacoma Public Schools
Tacoma, WA

[C + D] + [D + E]

C: Students GAINED since September.
D: Students LOST since September.
E: End-of-Year Enrollment.

2. TURBULENCE FORMULAS

Tulsa Public Schools
Tulsa, OK

Mobility Transactions ÷ Beginning Enrollment

Mobility transactions are defined as E2s + G1s + G2s + G3s + G4s + L1s + L2s + L3s + L4s + L5s.
Beginning enrollment is defines as all E1s.

E1: a pupil entering school for the first time during the current school year. The pupil has not been enrolled in a public school during the current school year.
E2: a pupil entering school in Oklahoma who has been enrolled in an out-of-state public school during the current school year.
G1: a pupil entering a classroom by transfer or promotion from another classroom or school in the same district.
G2: a pupil entering a classroom from another school district in this state.
G3: a pupil re-entering into the same classroom after withdrawal due to sickness, suspension, necessity to work, truancy, or temporary absence from the district.
G4: a pupil re-entering in the same school system after an apparent permanent withdrawal.
L1: a pupil transferred or promoted to another classroom or a school in the same district.
L2: a pupil moved from one school to another school in the state of Oklahoma.
L3: a pupil leaving a classroom due to sickness, suspension, necessity to work, truancy or temporary absence from the district.
L4: a pupil leaving a classroom due to passing the compulsory school age, graduation, removal to another state or to attend a non-public school.
L5: a dropout, defined as any student who is under the age of 18 and has not graduated from high school and is not attending any public or private school or otherwise receiving an education pursuant to law for the full term the schools of the school district in which he (she) resides are in session.

Virginia Beach City Public Schools
Virginia Beach, VA

[E2 + R2 + R3 + R4 + W2 + W3 + W4 + W5 + W8 + W9] ÷ September 30 Membership

E2: any pupil from another State who has not previously, during this school year, entered any public school in this State but who has during the school year, been entered in a public school in the State from which he came. (This includes any school operated by the Federal Government.)
R2: pupil received from another public school in the same county or city.
R3: pupil received from a public school in the State but outside the county or city.
R4: pupils re-entering the same school after withdrawal or discharge.
W2: pupil promoted or transferred to another room in the same school.
W3: pupil transferred to a non-public school or a school in a foreign country which is not operated by our own government.
W4: pupil transferred to a public school in another county or city within the state or to a State-operated institution or hospital within the state.
W5: pupil transferred to a public school in another state. (This includes any school operated by the Federal Government.)
W8: pupil withdrawing for other reasons and not entering another school.
W9: pupils withdrawing after being absent fifteen consecutive days who are expected to re-enter school. At the end of the school year, a W9 pupil who has not returned to school should be coded and counted as a W8.

Arizona Department of Education
Phoenix, AZ

[E1 + E2 + W1 + W2 + W3 + R1 + R2 + R3 + R6] ÷ ADM

E1 + E2: total students entering an Arizona public school for the first time.
W1 + W2 + W3: total students withdrawing from school to attend another educational facility outside the district.
R1 + R2 + R3 + R6: total students re-entering the district after having withdrawn from same or other education facility.
ADM: average daily membership during the first 100 days of classes.

Fresno USD
Fresno, CA

[Total cumulative enrollment - Average Daily Enrollment] ÷ Average Daily Enrollment

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Houston ISD
Houston, TX

[C + R + W] ÷ O

C: Students entering from another Houston ISD school or re-entering the school during the current school year.
R: Students previously enrolled in another Texas public school district during the current school year and now entering the school.
W: Students withdrawing from the school (each occurrence).
O: Students whose first entry during this school year into a Texas public school is the school.

Long Beach USD
Long Beach, CA

Total Annual Enrollment of a School ÷ Average Daily Apportionment attendance

A high "average transitory factor" is an indication that the school has a relatively large number of unapproved absences or enrolls a large number of new students after the first month, or a combination of the two.

Washoe County School District
Reno, NV

[(Total Es - September enrollment) + Rs + Ws] ÷ September enrollment

E: new enrollees to the district.
R: students re-enrolling from any other school in Nevada.
W: students withdrawing from a school.

3. STABILITY FORMULAS

Austin ISD
Austin, TX

$$\frac{\text{Students enrolled by the end of the first six weeks of school minus withdrawals}}{\text{Students enrolled by the end of the first six weeks of school}}$$

Bellevue Public Schools
Bellevue, WA

$$\text{Stability Indicator} = \frac{\text{Class of 1990 natives who stayed in the district for high school}}{\text{The original class of 1990 natives}}$$

Mobility is defined as the number of new students arriving and leaving for each grade level during the high school years.

Clark County School District
Las Vegas, NV

Stability Factor = % of E1 students still enrolled who enrolled as E1 students at the beginning of the year.

Jefferson County Public Schools
Golden, CO

Stability rate: % of students enrolled at some initial point relative to the number of those same students still enrolled at some later point.

Mt. Diablo USD
Concord, CA

Students who did not change schools ÷ Initial enrollment

San Diego City Schools
San Diego, CA

Stability: **percentage of students enrolled at the beginning of the school year who remain enrolled at the same school through to the end of the school year.**

Colorado Springs Public Schools **[E1 - (W + T)] ÷ E1**
Colorado Springs, CO

E1: first day enrollment.
W: withdrawals, first semester.
T: new enrollees or transfers in.

Duval County **[Entry Enrollment-Withdrawals] ÷ Exit Enrollment**
Public Schools
Jacksonville, FL

Entry enrollment: number of students in school during the first survey period (the second or third week in October) for a school year.
Withdrawals: all students who left the school during the school year for any reason.
Exit enrollment: number of students in school during the last official survey period for a school year.

New York State Education Department
Albany, NY

Stability measure: **% of students in the highest grade of his or her school who were also enrolled in the previous year.**

Norfolk Public Schools **[SP - W] ÷ SP**
Norfolk, VA

SP = September 30 enrollment.
W = the total cumulative Ws less the cumulative W1s and W7s.

Tacoma Public Schools **A ÷ [A + B]**
Tacoma, WA

A: Students who began in September and stayed the entire year.
B: Students who began in September, but did not stay.

4. COUNTS

Bellevue Public Schools
Bellevue, WA

Mobility: **the number of new students arriving and leaving for each grade level during the high school years.**

Nashville City School District
Nashville, TN

Students entering late or leaving early (transfers and withdrawals) are considered mobile.

North York Board of Education
North York, Ontario

Student mobility is a count of INs + OUTs per school from October 1 - May 31.

St. Paul Public Schools
St. Paul, MN

Prime Indicator of Mobility:

Students entering the school after October 1 + students leaving the school after October 1 (not including identified dropouts).
This sum is used to determine which schools are eligible for a program that provides transportation for students to continue at the same school even after they move.

Beaverton Schools **Number of enrollment changes**
Beaverton, OR

Number of enrollment changes equals the sum of:

Students previously enrolled during the current school year in a state other than Oregon +
Students transferred from another Oregon school outside District 48 +
Students received from nonpublic schools within Oregon +
Students received from another room in the same school (used to process grade changes) +
Students transferred from another public school within District 48 +
Students re-entering school after withdrawal or discharge that occurred during the current school year (this cannot be the original entry for the student) +
Students who have withdrawn.

Cincinnati Public Schools
Cincinnati, OH

Non-mobile students: **% of students who remained in a school for the entire year.**

5. MISCELLANEOUS FORMULAS & DEFINITIONS

Detroit Public Schools
Detroit, MI

Mobility Measure: **a count of the number of schools attended by each of the students for whom records are obtained.**

Washington State Department of Education
Olympia, WA

Mobile students: **students who have only been in the district for the prior or current year.**
Non-mobile students: **students who have been in their district four or more years.**

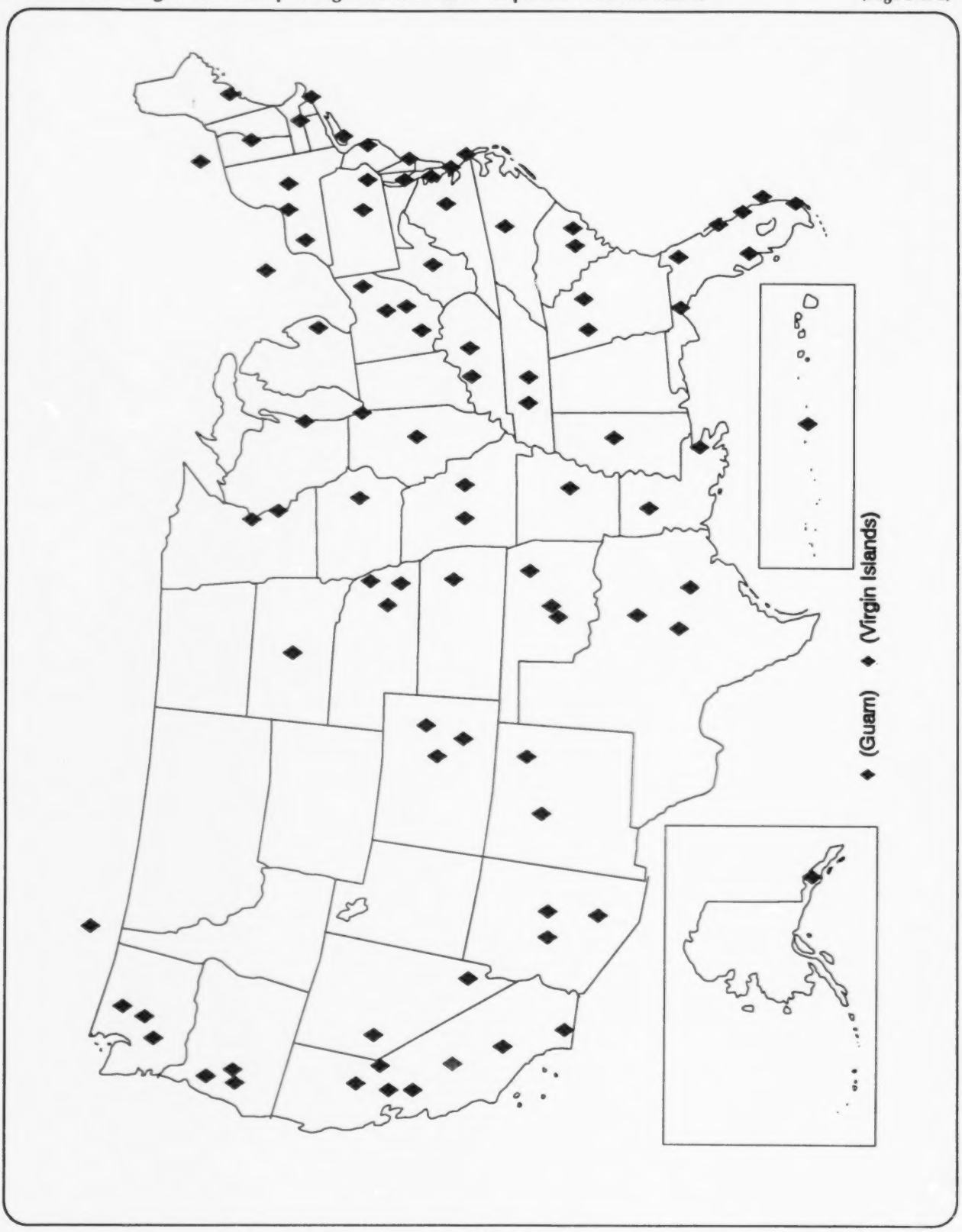
Attachment B: Organizations Responding with Formulas or Requests to Receive Results

Organizations Sending Mobility Formulas

Alaska State Dept. of Ed.
Juneau, AK
Mesa Public Schools
Mesa, AZ
Arizona Dept. of Ed.
Phoenix, AZ
Tucson USD
Tucson, AZ
Mt. Diablo USD
Concord, CA
Fresno USD
Fresno, CA
Long Beach USD
Long Beach, CA
Oakland USD
Oakland, CA
Sacramento City Schools
Sacramento, CA
San Diego City Schools
San Diego, CA
Colorado Springs Public Schools
Colorado Springs, CO
Jefferson County Public Schools
Golden, CO
Duval County Public Schools
Jacksonville, FL
Dade County Public Schools
Miami, FL
Orange County Public Schools
Orlando, FL
Hawaii Dept. of Ed.
Honolulu, HI
Des Moines Ind. Comm. School Dist.
Des Moines, IA
Chicago Public Schools
Chicago, IL
Illinois State Board of Ed.
Springfield, IL
Jefferson County Public Schools
Louisville, KY
Springfield Public Schools
Springfield, MA
Baltimore County Schools
Towson, MD
Detroit Public Schools
Detroit, MI
St. Paul Public Schools
St. Paul, MN
Missouri State Dept. of Ed.
Jefferson City, MO
St. Louis Public Schools
St. Louis, MO
Lincoln Public Schools
Lincoln, NE
Omaha Public Schools
Omaha, NE
Albuquerque Public Schools
Albuquerque, NM
New Mexico Dept. of Ed.
Santa Fe, NM
Clark County School District
Las Vegas, NV
Washoe County School District
Reno, NV
New York State Ed. Dept.
Albany, NY
New York City Public Schools
Brooklyn, NY
Buffalo City School District
Buffalo, NY
Rochester City School District
Rochester, NY
Akron Public Schools
Akron, OH
Cincinnati Public Schools
Cincinnati, OH
Columbus Public Schools
Columbus, OH
Oklahoma City Public Schools
Oklahoma City, OK
Tulsa Public Schools
Tulsa, OK
North York Board of Ed.
North York, Ontario
Beaverton Schools
Beaverton, OR
Charleston County School Dist.
Charleston, SC
Nashville City School Dist.
Nashville, TN
Houston ISD
Houston, TX
Irving Public Schools
Irving, TX
Norfolk Public Schools
Norfolk, VA
Virginia Beach City Public Schools
Virginia Beach, VA
Bellevue Public Schools
Bellevue, WA
Tacoma Public Schools
Tacoma, WA
Washington State Dept. of Ed.
Olympia, WA
Milwaukee Public Schools
Milwaukee, WI
West Virginia Dept. of Ed.
Charleston, WV

Organizations Requesting Results

Rhode Island State Dept. of Ed.
Providence, RI
Maine State Dept. of Ed.
Augusta, ME
South Dakota State Dept. of Ed.
Pierre, SD
Palm Beach Co. School District
Palm Beach Gardens, FL
Kentucky State Dept. of Ed.
Frankfort,
Pennsylvania State Dept. of Ed.
Harrisburg, PA
Florida State Dept. of Ed.
Tallahassee, FL
Louisiana State Dept. of Ed.
Baton Rouge, LA
Virgin Islands Dept. of Ed.
St. Thomas, VI
Philadelphia Public Schools
Philadelphia, PA
Kansas State Dept. of Ed.
Topeka, KS
Arkansas State Dept. of Ed.
Little Rock, AK
New Jersey State Dept. of Ed.
Trenton, NJ
North Carolina State Dept. of Ed.
Raleigh, NC
Oklahoma State Dept. of Ed.
Oklahoma City, OK
St. Lucie County Schools
Fort Pierce, FL
Hillsborough Co. Public Schools
Tampa, FL
California State Dept. of Ed.
Sacramento, CA
Detroit Public Schools
Detroit, MI
Nebraska State Dept. of Ed.
Lincoln, NE
Minnesota State Dept. of Ed.
St. Paul, MN
Texas Education Agency
Austin, TX
South Carolina State Dept. of Ed.
Columbia, SC
Oregon State Dept. of Ed.
Salem, OR
Montreal Catholic School Comm.
Montreal, Quebec, Canada
Caddo School District
Shreveport, LA
Colorado State Dept. of Ed.
Denver, CO
Guam Dept. of Ed.
Agana, GM
Georgia State Dept. of Ed.
Atlanta, GA
Ohio State Dept. of Ed.
Columbus, OH
ACT
Iowa City, IA
Fulton Co. Board of Ed.
Atlanta, GA
Tennessee Dept. of Ed.
Nashville, TN
Virginia Dept. of Ed.
Richmond, VA
Delaware State Dept. of Ed.
Dover, DE
Eugene School District
Eugene, OR
D. C. Public Schools
Washington, DC
Mississippi State Dept. of Ed.
Jackson, MS
Edmonton School District
Edmonton, Alberta, Canada


(Guam)
(Virgin Islands)